AN5 A
VAD LEB
ADF
ADAA
AAMISSIONS

MEMORANDUM

From: Librarian/Associate Dean
To: Academic Dean and Provost

Encl: (1) "Examination for Admission to the United States Naval
           Academy" -- 1922 *(Class of '26)*

1. We recently received the original as a gift to Special
Collections, and I thought you would find it of interest. A pre-
SAT environment.

RICHARD H. WERKING

Interesting!

Subjects	Questions
Geography	4
Arithmetic	5
Geometry	5
Algebra	5
Spelling	40 words in 30 minutes
Grammar	3 (many sub-questions)
U.S. History	4 (many sub-questions)

UNITED STATES NAVY DEPARTMENT
BUREAU OF NAVIGATION

EXAMINATION PAPERS FOR ADMISSION
TO THE UNITED STATES NAVAL
ACADEMY, ANNAPOLIS, MD.

PRINTED FOR GENERAL INFORMATION

REGULAR EXAMINATION SERIES

51–52–53–54–55–56–57–58–59–60–61–62–63–64–65–66–67–68–69–70

SUBSTANTIATING EXAMINATION SERIES

1–2–3–4–5–6–7–8–9–10–11–12–13–14

FEBRUARY, 1922–APRIL, 1931

NAVY DEPARTMENT.

EXAMINATION FOR ADMISSION TO THE UNITED STATES NAVAL ACADEMY.

FIRST SUBJECT—GEOGRAPHY.

DIRECTIONS TO THE CANDIDATE—READ CAREFULLY.

RATING.

Candidate must fill these blanks. {Time commenced .... Date .... Examination No. ....

Time finished .... Place of Examination ....

(City or town.)　　　　(State.)

Time allowed, 2 hours.

N. B.—Do not write on this sheet. Blank sheets will be furnished for the answers to the questions hereon. Number answers to correspond with numbers of questions.

Write only on the ruled side of the blank sheets furnished.

Begin a paragraph for the answer to each subdivision of a question.

Pay special attention to grammar, spelling, punctuation, and general neatness. These, and the use of language throughout the examination, will be considered in marking the papers.

Question 1. (*a*) Name ten countries of Europe, with their respective capitals.

(*b*) Name in order the States on the northern boundary of the United States.

Question 2. (*a*) Define the following terms: (1) Solstice; (2) Tropic of Capricorn; (3) plateau; (4) glacier; (5) estuary.

(*b*) Name the principal rivers of France.

Question 3. Locate and identify the following: (1) Tucson; (2) Saskatchewan; (3) Asuncion; (4) Rhodesia; (5) Mount Mitchell; (6) Penobscot; (7) Madras; (8) Crimea; (9) Galicia; (10) Antwerp.

Question 4. Discuss in a one-page theme the climate, population, industries, and products of your home State.

NAVY DEPARTMENT.

EXAMINATION FOR ADMISSION TO THE UNITED STATES NAVAL ACADEMY.

SECOND SUBJECT—ARITHMETIC.

DIRECTIONS TO THE CANDIDATE—READ CAREFULLY.

RATING.

Candidate must fill these blanks.
Time commenced _____ Date _____ Examination No. _____
Time finished _____ Place of Examination _____
(City or town.)　　　　　　(State.)

Time allowed, 3 hours.

In solving the following problems, GIVE THE WORK IN FULL, showing all the figures and mathematical signs necessary for the solution of each problem.

Write the word "Answer" or its abbreviation, "Ans.," after the answer to each problem.

N. B.—Do not write on this sheet. Blank sheets will be furnished for the answers to the questions hereon. Number answers to correspond with numbers of questions.

Write only on the ruled side of the blank sheets furnished.

Do not use a separate sheet of any kind for rough work. All work should be submitted in its original form. No smooth copy is required. Pencil may be used for all mathematical work.

Question 1. (a) A liter is a cubic decimeter, and a meter is 39.37 inches. Find to the nearest hundredth the number of liters in a gallon.

(b) Find the greatest common divisor of 2,943, 2,616, and 4,578. Also, find the least common multiple of 112, 168, 196, and 224.

Question 2. (a) The hind wheel of a wagon is $3\frac{3}{4}$ feet in diameter, and the diameter of the front wheel is $2\frac{1}{4}$ feet. Find the shortest distance it is necessary to draw the wagon in order that each wheel shall make a whole number of revolutions. ($\pi = 3.1416$.)

(b) The longitude of New York is 73° 58′ 30″ west, and that of Bergen is 5° 18′ east. When the local time at New York is 7.15 a. m., what is the local time at Bergen?

Question 3. (a) If fencing costs 15 cents per linear foot, how much will it cost to fence a square field containing 5 acres?

(b) A sheet-iron tank is to be built to contain 1,000 gallons. It is to be open at the top, and the sheet iron is to cost 50 cents a square foot. Find the cost of the metal if the tank is to be cylindrical, with depth and diameter equal.

Question 4. (a) A sells his automobile to B for 84 per cent of what it cost. B sells to C for $1,218, making a profit of 16 per cent. How much did the automobile cost A?

(b) In sharing profits three partners, A, B, and C, receive, respectively, $10,000, $7,500, and $5,500. If their total capital is $690,000, how much did each invest?

Question 5. (a) The earth rotates on its axis once in 23 hours 56 minutes 4 seconds. If the equatorial radius is 3,962 miles, find in feet per second the velocity of a point on the equator due to the earth's rotation.

(b) Two aviators fly in opposite directions at equal speeds. One discharges a gun every 30 seconds, and the other hears the reports at intervals of 35 seconds. Sound travels 1,100 feet a second. What is the speed of either aviator?

NAVY DEPARTMENT.

EXAMINATION FOR ADMISSION TO THE UNITED STATES NAVAL ACADEMY.

THIRD SUBJECT—Geometry.

DIRECTIONS TO THE CANDIDATE—READ CAREFULLY.

RATING.

Candidate must fill these blanks.
{ Time commenced.................... Date .... Examination No. ....
{ Time finished .... Place of Examination ....
(City or town.)   (State.)

Time allowed, 3 hours.

In solving the following problems, **GIVE THE WORK IN FULL**, showing all the figures and mathematical signs necessary for the solution of each problem.

Write the word "Answer" or its abbreviation, "Ans.," after the answer to each problem.

N. B.—Do not write on this sheet. Blank sheets will be furnished for the answers to the questions hereon. Number answers to correspond with numbers of questions.

Write only on the ruled side of the blank sheets furnished.

Do not use a separate sheet of any kind for rough work. All work should be submitted in its original form. No smooth copy is required. Pencil may be used for all mathematical work.

Question 1. (a) Name and define the different kinds of triangles. Prove that the sum of the angles of a triangle equals two right angles.

(b) Name the several systems of three lines each, drawn with reference to a given triangle, in each of which systems the three lines meet in a point. Prove that the perpendiculars let fall from the vertices of a triangle upon the opposite sides meet in a point.

Question 2. (a) What is the sum of the angles of (1) a convex quadrilateral, (2) a pentagon, (3) a dodecagon? State and prove the theorem in regard to the sum of the interior angles of any convex polygon.

(b) Define *isosceles trapezoid,* and prove that its diagonals are equal. Also show that the point of intersection of the diagonals divides either of them in the ratio of the parallel bases.

Question 3. (a) If ABC is an equilateral triangle inscribed in a circle and P any point in the arc BC, prove that PA equals the sum of the chords PB and PC. (Hint: Take N on PA so that $PN=PC$, and construct the triangle PCN.)

(b) A straight line is drawn through a given point, A, intersecting a given circle in B and C. Find the locus of the middle point of the intercepted chord BC. Draw figure for the case when A is outside the circle.

Question 4. (a) Prove that in any triangle the bisector of an angle divides the opposite side into segments proportional to the adjacent sides. If the sides of a triangle are a, b, and c, find the segments into which c is divided by the bisector of the angle opposite.

(b) Prove that the areas of two triangles having an angle of the one equal to an angle of the other are to each other as the products of the sides including the equal angles. Using this theorem, show how a line may be drawn parallel to the base of a triangle so as to cut off one-fourth the area.

Question 5. (a) Define *extreme and mean ratio.* Show how to divide a line internally in extreme and mean ratio, and prove the construction.

(b) Find the side of the regular pentagon inscribed in a circle of radius a.

NAVY DEPARTMENT.

EXAMINATION FOR ADMISSION TO THE UNITED STATES NAVAL ACADEMY.

FOURTH SUBJECT—(ALGEBRA.)

DIRECTIONS TO THE CANDIDATE—READ CAREFULLY.

RATING.

Candidate must fill these blanks. { Time commenced _____ Date _____ Examination No. _____

Time finished _____ Place of Examination _____

(City or town.)　　　　　(State.)

Time allowed, 3 hours.

In solving the following problems, GIVE THE WORK IN FULL, showing all the figures and mathematical signs necessary for the solution of each problem.

Write the word "Answer," or its abbreviation, "Ans.," after the answer to each problem.

N. B.—Do not write on this sheet. Blank sheets will be furnished for the answers to the questions hereon. Number answers to correspond with numbers of questions.

Write only on the ruled side of the blank sheets furnished.

Do not use a separate sheet of any kind for rough work. All work should be submitted in its original form. No smooth copy is required. Pencil may be used for all mathematical work.

Question 1. (a) Simplify $\dfrac{(x^2-49)(x^2-16x+63)}{(x^2-14x+49)(x^2-2x-63)}$

and $\dfrac{1}{m^2-mn+n^2} - \dfrac{1}{m^2+mn+n^2} - \dfrac{2mn}{m^4+m^2n^2+n^4}$.

(b) Reduce to its lowest terms $\dfrac{ac+3ad+2bc+6bd}{3ac-ad+6bc-2bd}$.

Find the lowest common multiple of x^3-y^3, $x^2-2xy+y^2$, $x^4+x^2y^2+y^4$.

Question 2. (a) Find the greatest common divisor of $6x^5-4x^4-11x^3-3x^2-3x-1$ and $4x^4+2x^3-18x^2+3x-5$.

(b) Extract the square root of $9x^{-4}-18x^{-3}y^{\frac{1}{2}}+15x^{-2}y-6x^{-1}y^{\frac{3}{2}}+y^2$.

Question 3. (a) A train leaves A for B, 224 miles distant, at 9 a. m., and 1 hour later a train leaves B for A. They meet at noon. If the second train had left at 9 a. m. and the first at 9.50 a. m., they would also have met at noon. Find their rates of speed.

(b) Solve the simultaneous equations $\dfrac{b}{x}+\dfrac{a}{y}=c$,

$$\dfrac{a}{z}+\dfrac{c}{x}=b,$$

$$\dfrac{c}{y}+\dfrac{b}{z}=a.$$

Question 4. (a) Extract the square root of $38-12\sqrt{10}$, and the square root of $2a+2\sqrt{a^2-b^2}$.

(b) Solve the equation $\dfrac{\sqrt{5x-4}+\sqrt{5-x}}{\sqrt{5x-4}-\sqrt{5-x}}=\dfrac{2\sqrt{x}+1}{2\sqrt{x}-1}$, and prove the solution.

Question 5. (a) The wheel of a sulky moving with uniform speed is 15 feet in circumference. If the wheel revolved in 1 second less time the rate of the sulky would be $\frac{30}{11}$ miles an hour faster. Find the speed of the sulky.

(b) Solve the simultaneous equations $2x^2-xy=6y$,

$$x+2y=7.$$

sulky: a light carriage with 2 wheels for 1 person

NAVY DEPARTMENT

EXAMINATION FOR ADMISSION TO THE UNITED STATES NAVAL ACADEMY.

DICTATION EXERCISE IN SPELLING.

NO CANDIDATE SHOULD BE ALLOWED TO SEE THIS SHEET.

To the Examiner.—The examiner will dictate the following words. Pronounce distinctly each word, repeating the word if necessary.

Thirty minutes are allowed for this subject.

1. besiege		21. recognize
2. abundance		22. February
3. lyric		23. acquire
4. prairie		24. villain
5. particular		25. privilege
6. secrete		26. until
7. tedious		27. beginning
8. audit		28. recommend
9. souvenir		29. serviceable
10. knavery		30. accumulate
11. grateful		31. apparel
12. warrant		32. interference
13. monopolize		33. absence
14. fragile		34. technical
15. scrupulous		35. business
16. consequence		36. supersede
17. discernible		37. finally
18. literature		38. referring
19. relief		39. ascend
20. salary		40. guarantee

NAVY DEPARTMENT.

EXAMINATION FOR ADMISSION TO THE UNITED STATES NAVAL ACADEMY.

SIXTH SUBJECT—(GRAMMAR.)

DIRECTIONS TO THE CANDIDATE—READ CAREFULLY.

RATING.

Candidate must fill these blanks. { *Time commenced* .... *Date* .... *Examination No.* ....

Time finished .... *Place of Examination* ....
(City or town.)   (State.)

Time allowed, 2 hours.

N. B.—Do not write on this sheet. Blank sheets will be furnished for the answers to the questions hereon. Number answers to correspond with numbers of questions.

Write only on the ruled side of the blank sheets furnished.

Begin a paragraph for the answer to each subdivision of a question. Do not abbreviate, except in parsing.

Pay special attention to grammar, spelling, punctuation, and general neatness. These, and the use of language throughout the examination, will be considered in marking the papers.

Question 1. (*a*) What part of speech is each of the italicized words in the following selection, and how is it used?

> Here is the place; right over the hill
> Runs the *path* I took;
> You can see the gap in the old wall *still*,
> And the stepping-stones in the shallow brook.
>
> There is the house, with the gate red-barred,
> And the poplars *tall*;
> And the *barn's* brown length, and the cattle yard,
> And the white horns *tossing* above the wall.

(*b*) Give the principal parts of each of the following verbs: (1) To be; (2) to sit; (3) to run; (4) to read; (5) to attack.

Question 2. (*a*) Write each of the following:

(1) The possessive plural of *man*.
(2) The present participle of *lie* (to recline).
(3) The comparative degree of *ill*.
(4) The objective case of *she*.
(5) The possessive case of the relative pronoun.

(*b*) Punctuate and capitalize the following:

Thou mayest recollect o king a thing which sometimes happens in the days of winter when it is warm in thy hall but rains snows and storms without then comes a little bird and darts across the hall flying in at one door and out at the other the instant of this transit is sweet to him for then he feels neither rain nor hurricane but that instant is short the bird is gone in the twinkling of an eye and from winter he passes forth to winter such to me seems the life of man on this earth such its momentary course compared with the length of time that precedes and follows it.

Question 3. Wherever necessary, correct the following sentences:

(*a*) Key Summit is all the farther we will be able to go to-morrow.
(*b*) My principle fear was that I might loose the opportunity of meeting the dean of the university.
(*c*) Thinking the plan over in the afternoon, the likelihood of John winning the tournament seemed slight.
(*d*) The reasons which the prisoner gave for his crime seemed like he had invented them.

(e) The patient who ^he saw at the hospital didn't feel [hardly] strong enough to
testify.

Question 4. Write a theme of about one page in length on one of the following subjects:
(a) Why I like the sea.
(b) My narrow escape.
(c) My experiences with setting-up exercises.
(d) Gen. Foch.
(e) An exciting day in camp.

NAVY DEPARTMENT.

EXAMINATION FOR ADMISSION TO THE UNITED STATES NAVAL ACADEMY.

RATING.

SEVENTH SUBJECT—United States History.

DIRECTIONS TO THE CANDIDATE—READ CAREFULLY.

Candidate must fill these blanks.

Time commenced .... Date .... Examination No. ....

Time finished .... Place of Examination ....
(City or town.)   (State.)

Time allowed 2 hours.

N. B.—Do not write on th .... ill be furnished for t .... wers to the questions hereon. Number answers to correspond with numbers of q .... w furnished.

Write only on the ruled sid ....

Begin a paragraph for the .... iction of a question. Do not abbreviate.

Pay special attention to gra .... tion, and general neatness. These, and the use of language throughout the examination, will be considered ... m

Question 1. Identify, in .... e following: (a) Ponce de Leon; (b) Oglethorpe; (c) Eli Whitney; (d) Webster .... y; (e) "Underground Railway"; (f) Faneuil Hall; (g) Leonard Wood; (h) Kear ....

Question 2. (a) What were four permanent settlements along the Atlantic seaboard previous to 1621, and by whom were they made? (b) Briefly state what were .... blic services of George Washington.

Question 3. (a) What were the argume .... r and against the admission of Texas? (b) What were the immediate and what the lasting results of the Civil War?

Question 4. Write from one to two pages on one of the following:

(a) F .... id in the American Revolution.
(b) .... vice of the Navy in the War of 1812.
(c) Admiral Dewey.
(d) American inventions.
(e) American relations with the Far East.

[Significant portions of this page have deteriorated.

KW
3/3/55]

See attached

Question 3. (*b*) Solve the simultaneous equations.

$$\frac{b}{x} + \frac{a}{y} = c,$$

$$\frac{a}{z} + \frac{c}{x} = b,$$

$$\frac{c}{y} + \frac{b}{z} = a.$$

Question 4. (*a*) Extract the square root of $38 - 12\sqrt{10}$, and the square root of $2a + 2\sqrt{a^2 - b^2}$.

(*b*) Solve the equation $\dfrac{\sqrt{5x-4} + \sqrt{5-x}}{\sqrt{5x-4} - \sqrt{5-x}} = \dfrac{2\sqrt{x}+1}{2\sqrt{x}-1}$, and prove the solution.

Question 5. (*a*) The wheel of a sulky moving with uniform speed is 15 feet in circumference. If the wheel revolved in 1 second less time the rate of the sulky would be $\frac{30}{11}$ miles an hour faster. Find the speed of the sulky.

(*b*) Solve the simultaneous equations $2x^2 - xy = 6y,$
$$x + 2y = 7.$$

UNITED STATES HISTORY

Question 1. Identify, in a sentence each, the following: (*a*) Ponce de Leon; (*b*) Oglethorpe; (*c*) Eli Whitney; (*d*) Webster-Ashburton Treaty; (*e*) "Underground Railway"; (*f*) Faneuil Hall; (*g*) Leonard Wood; (*h*) Kearsarge.

Question 2. (*a*) What were four permanent settlements along the Atlantic seaboard previous to 1621, and by whom were they made?

(*b*) Briefly state what were the public services of George Washington.

Question 3. (*a*) What were the arguments for and against the admission of Texas?

(*b*) What were the immediate and what the lasting results of the Civil War?

Question 4. Write from one to two pages on one of the following:

(*a*) French aid in the American Revolution.

(*b*) The service of the Navy in the War of 1812.

(*c*) Admiral Dewey.

(*d*) American inventions.

(*e*) American relations with the Far East.

SERIES NO. 53.—FEBRUARY, 1923

UNITED STATES HISTORY

Of the three questions, write on two:

Question 1. (*a*) Name the European nations which were rivals of the English in the colonization of America.

(*b*) Explain the defects of the Government under the Articles of Confederation.

(*c*) Name the causes of the War of 1812.

(*d*) Give the provisions of two of the three latest amendments to the Federal Constitution.

Question 2. (*a*) Give a brief account of the expansion of the English colonies in America from 1660 to 1688.